

Amendment and Response

Applicant: Ronald W. Hall et al.

Serial No.: 10/717,230

Filed: Nov. 19, 2003

Docket No.: 10971833-3

Title: METHOD AND APPARATUS FOR PROVIDING INK TO AN INK JET PRINTING SYSTEM

IN THE CLAIMS

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims:

1-18. (Cancelled)

19. (Currently Amended) A method of providing ink to a printing system, the printing system including a docking bay having therein a first fluid inlet for receiving pressurized ink, the method comprising:

inserting a pump module into the docking bay of the printing system to couple the
coupling a pump module to the first fluid inlet within the docking bay, the
pump module including a second fluid inlet for receiving ink, an air purge apparatus, and a pressurizing apparatus for increasing the fluid pressure of the ink before providing the ink to the first fluid inlet;
coupling an ink container to the second fluid inlet; and
removing air trapped within the pump module using the air purge apparatus.

20. (Previously Presented) The method of claim 19, wherein the printing system includes a pump actuator and wherein the method further comprises:

actuating the pump actuator to move linearly to engage the pressurizing apparatus to provide pressurized ink at the first fluid inlet.

21. (Previously Presented) The method of claim 20, wherein the pressurizing apparatus includes a variable volume chamber having a chamber volume and wherein the step of actuating the pump actuator includes:

increasing the chamber volume to draw ink into the variable volume chamber from the ink container; and

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decreasing the chamber volume to expel pressurized ink from the variable volume chamber through the first fluid inlet of the pump module.

22. (Previously Presented) The method of claim 19 wherein the air purge apparatus includes a septum, and wherein the step of removing air trapped within the pump module includes:

inserting a hollow member through the septum; and
applying vacuum pressure to the hollow member to draw trapped air from the air purge apparatus.

23. (Previously Presented) The method of claim 19, wherein prior to the step of coupling the ink container to the second fluid inlet, the method includes:

removing a protective cap on the ink container to expose a fill port for filling the ink container with an initial quantity of ink;
removing a plug from the fill port;
refilling the ink container with a quantity of refill ink; and
inserting a plug into the fill port to prevent refill ink leakage from the ink container.

24. (Canceled)

25. (Currently Amended) The method of claim 24~~19~~, wherein the pump module includes keying features and the docking bay includes corresponding keying features, and wherein the step of inserting the pump module into the docking bay includes:

engaging the keying features of the pump module with the corresponding keying features of the docking bay to ensure the pump module is properly oriented upon insertion of the pump module into the docking bay.

26. (Previously Presented) The method of claim 25, wherein the pump module includes further keying features and the ink container includes corresponding keying features, and wherein the step of coupling the ink container to the second fluid inlet includes:

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engaging the corresponding keying features of the ink container with the further keying features of the pump module to prevent an incompatible ink container from being coupled to the second fluid inlet.

27. (Currently Amended) The method of claim 24~~19~~, wherein the pump module includes keying features and the ink container includes corresponding keying features, and wherein the step of coupling the ink container to the second fluid inlet includes:

engaging the corresponding keying features of the ink container with the keying features of the pump module to prevent an incompatible ink container from being coupled to the second fluid inlet.

28. (Previously Presented) A method for providing ink to a printing system, the printing system including a plurality of fluid inlets, the method comprising:

coupling a pump module to the plurality of fluid inlets, the pump module including a plurality of fluid outlets that engage the plurality of fluid inlets, and a plurality of pressurizing apparatuses for increasing the fluid pressure of the ink before providing ink to the plurality of fluid inlets; and

coupling a plurality of ink containers having fluid outlets to the pump module, the pump module including a plurality of fluid inlets that receive the fluid outlets of the plurality of ink containers.

29. (Previously Presented) The method of claim 28, wherein the printing system includes a docking bay for the printing system fluid inlets, and wherein the step of coupling the pump module to the plurality of fluid inlets comprises:

inserting the pump module into the docking bay of the printing system.

30. (Previously Presented) The method of claim 29, wherein the pump module includes keying features and the docking bay includes corresponding keying features, and wherein the step of inserting the pump module into the docking bay includes:

engaging the keying features of the pump module with the corresponding keying features of the docking bay to ensure the pump module is properly oriented upon insertion of the pump module into the docking bay.

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31. (Previously Presented) The method of claim 30, wherein the pump module includes further keying features and each of the plurality of ink containers includes corresponding keying features, and wherein the step of inserting the plurality of ink containers into the pump module includes:

engaging the corresponding keying features of each of the plurality of ink containers with the further keying features of the pump module to prevent an incompatible ink container from being inserted to the pump module.

32. (Previously Presented) The method of claim 29, wherein the pump module includes keying features and each of the plurality of ink containers includes corresponding keying features, and wherein the step of inserting each of the plurality of ink containers into the pump module includes:

engaging the corresponding keying features of each of the plurality of ink containers with the keying features of the pump module to prevent an incompatible ink container from being inserted to the pump module.

33. (Previously Presented) The method of claim 29, wherein the pump module includes an air purge apparatus, and wherein the method further includes:

removing air trapped within the pump module using the air purge apparatus.

34. (Previously Presented) The method of claim 33 wherein the air purge apparatus includes a septum, and wherein the step of removing air trapped within the pump module includes:

inserting a hollow member through the septum; and
applying vacuum pressure to the hollow member to draw trapped air from the air purge apparatus.